PHARMACOLOGY & THERAPEUTICS

Chemotherapy, Toxicology and Metabolic Inhibitors
Executive Editor: A. C. Sartorelli
Yale University School of Medicine, Department of Pharmacology, 333 Cedar Street, New Haven, Connecticut 06510, USA
Associate Editor: Barbara Z. Renkin, Ph.D.

General and Systemic Pharmacology
Executive Editor: W. C. Bowman
University of Strathclyde, Department of Physiology & Pharmacology, Royal College, 204 George Street, Glasgow G1 1XW, Scotland

Clinical Pharmacology and Therapeutics
Executive Editor: A. M. Breckenridge
University of Liverpool, Department of Pharmacology & Therapeutics, P.O. Box 147, Liverpool L69 3BX, England

Library Annual Subscription Rates—published in 4 volumes per annum of 3 issues each. Annual Subscription, 1989, DM 2150.00 including postage and insurance, 2 years, 1989/90, DM 4085.00. *Specially Reduced Rates to Individuals*: Any individual whose institution takes out a library subscription may purchase a second or additional subscription for personal use at a much reduced rate of DM 740.00 annually. Subscribers to the Journal may claim a 20% discount off Encyclopedia volumes. Prices are subject to change without notice.

Subscription enquiries from customers in North America should be sent to Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, USA, and for the remainder of the world to Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England.

At the end of the year, the Subscriber will receive, free, the annual subject index.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organisations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproduction, microform or any other reproduction of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical photocopying recording or otherwise, without permission in writing from the copyright holder.

Photocopying Information for Users in the USA. The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $0.50 per page is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other Use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

Microform Subscriptions and Back Issues

Back issues of all previously published volumes are available direct from Pergamon Press. Back issues of Pergamon journals in microform can be obtained from UMI, 300 North Zeeb Road, Ann Arbor, Michigan 48106, USA.

Publishing and Advertising Offices

Pergamon Press plc
Headington Hill Hall
Oxford OX3 0BW
England

Pergamon Press Inc.
Maxwell House
Fairview Park, Elmsford
New York 10523, USA

PHARMACOLOGY & THERAPEUTICS

Chemotherapy, Toxicology and Metabolic Inhibitors
Executive Editor: A. C. Sartorelli
Yale University School of Medicine, Department of Pharmacology, 333 Cedar Street, New Haven, Connecticut 06510, USA
Associate Editor: Barbara Z. Renkin, Ph.D.

General and Systemic Pharmacology
Executive Editor: W. C. Bowman
University of Strathclyde, Department of Physiology & Pharmacology, Royal College, 204 George Street, Glasgow G1 1XW, Scotland

Clinical Pharmacology and Therapeutics
Executive Editor: A. M. Breckenridge
University of Liverpool, Department of Pharmacology & Therapeutics, P.O. Box 147, Liverpool L69 3BX, England

Library Annual Subscription Rates—published in 4 volumes per annum of 3 issues each. Annual Subscription, 1989, DM 2150.00 including postage and insurance, 2 years, 1989/90, DM 4085.00. *Specially Reduced Rates to Individuals*: Any individual whose institution takes out a library subscription may purchase a second or additional subscription for personal use at a much reduced rate of DM 740.00 annually. Subscribers to the Journal may claim a 20% discount off Encyclopedia volumes. Prices are subject to change without notice.

Subscription enquiries from customers in North America should be sent to Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, USA, and for the remainder of the world to Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England.

At the end of the year, the Subscriber will receive, free, the annual subject index.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organisations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproduction, microform or any other reproduction of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical photocopying recording or otherwise, without permission in writing from the copyright holder.

Photocopying Information for Users in the USA. The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $0.50 per page is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other Use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

Microform Subscriptions and Back Issues

Back issues of all previously published volumes are available direct from Pergamon Press. Back issues of Pergamon journals in microform can be obtained from UMI, 300 North Zeeb Road, Ann Arbor, Michigan 48106, USA.

Publishing and Advertising Offices

Pergamon Press plc
Headington Hill Hall
Oxford OX3 0BW
England

Pergamon Press Inc.
Maxwell House
Fairview Park, Elmsford
New York 10523, USA

Volume 37, 1988, Numbers 1–3

CONTENTS

Number 1 PAGE

Functional mechanisms of temperature regulation, adaptation and fever: Complementary system theoretical and experimental evidence: *J. Werner* 1

Importance of the thiol disulfide status of microtubule proteins for antimitotic drug action: *M. E. Stearns* 25

Photoaffinity labeling of angiotensin II and bradykinin receptors: *E. Escher* 37

Effects of cancer disease on the metabolism of anti-cancer agents: *S. Garattini, P. Ghezzi and M. D'Incalci* 57

Effects of methionine and other sulfur compounds on drug conjugations: *M. Reicks and J. N. Hathcock* 67

Class II antiarrhythmic agents: *J. W. Upward, D. G. Waller and C. F. George* 81

Age and diet effects on drug action: *J. Roberts and N. Tumer* 111

The glucagon receptor: Structural analysis by covalent labeling techniques: *R. Iyengar, J. T. Herberg and K. A. Rich* 151

Number 2

Effects of fibrates on serum lipids and atherosclerosis: *C. R. Sirtori and G. Franceschini* 167

Human drug metabolism *in vitro*: *P. H. Beaune and F. P. Guengerich* 193

Effects of interferons in neoplastic diseases of man: *E. C. Borden* 213

Glutathione, free radicals and chemotherapeutic agents: *D. Ross* 231

Neuropeptide Y as an autonomic neurotransmitter: *E. K. Potter* 251

Antidromic vasodilation and neurogenic inflammation: *L. A. Chahl* 275

Number 3

Metabolism of oxazaphosphorines: *N. E. Sladek* 301

Muscarinic receptor differentiation: *F. Mitchelson* 357

Metabolism of plant-derived anticancer agents: *G. Cragg and M.Suffness* 425